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CHRONICLE OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

The radio communiqués of the International Institute of Agriculture will be transmitted between 2.45 and 2.52 p. m. on the following days: Thursday, English and German; Friday, Spanish; Tuesday, Italian and French.

They will be broadcast from Rome II (245.5 m.) and Rome 2 RO 4 (25.4 m.).

The hour of broadcasts is Central European Time, which is one hour ahead of Greenwich Mean Time, and 5 hours ahead of Eastern Standard Time in the United States.

Permanent Committee of the Institute. — The Permanent Committee held its second session for 1939, which opened on June 1.

Committee of the International Forestry Centre (*First Session*). — The first session of the Committee of the International Forestry Centre—formed within the framework of the International Institute of Agriculture—was opened in Berlin on May 11 of this year.

At that date the following States had joined the Centre: Bulgaria, Denmark, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Mexico, Netherlands, Slovakia and Switzerland.

The International Organizations at present belonging to the Centre as corporate members are: the International Institute for Forest Research, the International Wood Committee and the Mediterranean Forest League.

The International Institute of Agriculture was represented, in accordance with the Statutes, by its President, Vice-President and two members of the Permanent Committee, and by the Secretary General.

After a full discussion, the Committee approved the proposals as regards the Centre's budget for 1939, the administration of its Office, the appointment of its staff and the programme of work for the current year.

The Committee expressed its satisfaction and gratitude for the special building and the special grants placed at its disposal by the Reich Government.

The next session of the Committee will take place in Rome in October, 1939.

Committee of Statistical Experts (*Eighth Session*). — The Institute was represented at the eighth session of the Committee of Statistical Experts, which met at Geneva from April 21 to 27, 1939, by the Chief of the General Statistical Service.

The Committee discussed the following questions amongst others: housing statistics; indexes of industrial production; and indexes relating to changes in *quantums* and prices in international trade, etc.

The next session of the Committee has been fixed for April 1940.

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INTERNATIONAL BULLETIN

OF PLANT PROTECTION

1939

No. 6

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Locust Invasion in 1938-39 †

The invasion of the South American locust (*Schistocerca paranensis*, Burm.) was less serious than in the preceding season, owing to the vigorous measures taken by the Crop Protection Service, in collaboration with various local institutions, and to the help of farmers, who took an active part in the destruction of this pest.

The first swarms were reported in the province of La Rioja at the beginning of June, 1938, and the movement spread insofar as it was favoured by the climate. They invaded the provinces of Salta, Santiago del Estero, Catamarca, Córdoba, San Luis, Santa Fé, and the Chaco Territory. Small swarms crossed the Rio Paraná and invaded the provinces of Corrientes and Entre Rios, where they laid their eggs, while in the north the Formosa Territory was invaded by a swarm from the south-west, which afterwards penetrated into Paraguay.

As in preceding years, the Crop Protection Service employed all the means at its disposal (flame-throwers, barriers, rollers, rakes, etc.). During the season successful experiments were made with dusts.

The following figures give an idea of the destruction of locusts in the various stages:—

Winged locusts	2,549,365 kg.
Egg-pods	390 »
' Mosquita '	19,823,826 »
' Saltona '	20,153,421 »
Total	<u>42,527,002 kg.</u>

The largest quantity (34,297,526 kg.) was destroyed in the province of Santa Fé, where the invasion was most severe; next in order came the Chaco Territory, where 3,091,086 kg. of locusts were destroyed.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. ABEL GOYTIA, Agricultural Engineer, Assistant Director of Plant Protection, Ministry of Agriculture, Buenos Aires, Argentine Republic.

Although it can hardly be said that a definite solution of the locust problem is to be found in the use of chemicals, there is no doubt that it was a very important factor in the destruction of the pest; that is to say, it leads to a considerable decrease in the damage caused each year by the adults, which are the most difficult to destroy. The chemicals used for dusting have the advantage of acting by direct contact, and they are harmless both to human beings and to cereal crops, so long as proper precautions are taken.

The destruction of locusts achieved, experimentally, by this method reached 33,673,000 kg., a very satisfactory figure; it will certainly become the surest and most rapid method in the anti-locust campaign and will tend to supersede the existing methods.

The above-mentioned experiments were carried out in only a small zone of the province of Santa Fé, owing to the scanty supply of apparatus; purchase of a large number is contemplated for the coming seasons, the type chosen being both powerful and manageable.

The following table shows the results obtained in the destruction of eggs and young locusts ('mosquita' and 'saltona' stages) effected in December, 1938.

Provinces and Territories	Eggs	'Mosquita'		'Saltona'	
	— Kg. (1)	Kg. (2)	Ha. (3)	Kg. (2)	Ha. (3)
Provinces: —					
Santa Fé	46,688	13,487,350	5,136	82,105,976	14,251
Corrientes	—	1,791,182	1,086	6,801,734	4,438
Entre Ríos	7,742	6,400	3,650	1,450,200	3,608
Córdoba	35,442	9,025,000	69,748	15,781,795	5,669
Salta	40	19,200	—	35,400	—
San Luis	11,309	777,600	483	4,627,800	—
Santiago del Estero	—	65,150	—	546,600	—
Territories: —					
Formosa	—	—	115	—	523
Chaco	—	191,084	5,723	401,180	14,132
Total . . .	101,221	25,362,986	85,941	111,750,685	42,621

(1) Destruction by collection.

(2) Destruction by spraying and barriers.

(3) Area invaded.

Eritrea and Amhara: Locust Movements *

Schistocerca gregaria. This species was not reported in Eritrea during February, 1939.

* Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

Locusta migratoria migratorioides. During the same month, neither egg-pods nor hatchings were noted in the territory of Eritrea. A few swarms of insignificant size were observed in western Tigrai.

As compared with the previous months, the situation continues to improve. A few swarms flying in the direction of Dancalia were observed in the Uollo region.

Little damage has been caused.

* * *

Schistocerca gregaria. No desert locusts were reported in Eritrea nor in Amhara during March, 1939.

Locusta migratoria migratorioides. During the first decade of March a swarm, coming from Lasta, was observed in Eritrea, chiefly in the Tigraizone, but it continued its flight towards Dancalia without stopping.

Neither egg-pods nor hatchings were noted in any district.

This being the general position, all the officers in charge of control operations have been recalled, although in some districts which are more subject to invasion, an observation service has been established.

In Amhara, towards March 20, swarms from Lasta were again reported; these have invaded the territories of Lanea and Liarza, and have destroyed the recently sown grain crops.

Greece: *Cerambyx dux*, a Pest of the Almond Tree *

The island of Chios possesses about 500,000 almond trees, a good year's harvest amounting to 1,000,000 okas of almonds. The average production at present, however, is only 400,000 okas.

The value of this production is approximately 15 million drachmae per annum. Two thirds are exported to India and Egypt, the remainder being consumed in Greece.

In recent years, a xylophagous beetle has caused appreciable damage to the trees. The Benaki Phytopathological Institute has identified this insect as *Cerambyx dux*, Fald. The Chios Agricultural Service estimates the annual loss at 100,000 okas of almonds representing a value of 3,500,000 drachmae.

On the recommendation of the Benaki Phytopathological Institute, the Ministry of Agriculture has decided on the application of compulsory control measures in the island.

* Communication from the official correspondent of the Institute, Professor Dr. C. A. ISAACIDES, Director of the Benaki Phytopathological Institute, Kiphissia-Athens, Greece.

India: New Diseases Recorded in Burma during the Year 1938 *

(1) *Cystopus candidus* (Pers.) Lév. on *Brassica campestris* at Maymyo and Kyaukse.

(2) *Pestalozzia* sp. on *Aleurites montana*, causing a leaf-spot disease at Hsum-Hsai.

(3) *Phytophthora* sp. on *Achras sapota*, causing a root-rot at Hmawbi.

(4) An eel-worm disease of paddy (*Oryza sativa*) known locally as 'Aket-phet' caused by *Anguillulina* sp.

The first symptom of the disease is the appearance of a flaccid brown or black stain at the point of attachment of the outermost leaf to its leaf-sheath. The discolouration, soon afterwards, extends both upwards and downwards slightly and as a result the leaf turns yellow and drops off. The symptoms then appear on the next full grown leaf which is also killed. The disease in this way, goes on infecting and killing the leaves upwards, till at the time of harvesting, the flag leaf only is left. As a result the yield is affected. The infection first took place when the plants were about a month old.

Southern Rhodesia: Locust Invasion, 1932-1939 †

Monthly Report No. 75. February, 1939.

All reports refer to the red locust (*Nomadacris septemfasciata*, Serv.).

Winged swarms have been reported in the following districts, namely: Lomagundi, Darwin, Mazoe, Mtoko, Umtali, Bikita, Ndanga, Belingwe, and Gwanda.

Practically all these swarms were stated to be egg-laying.

Hoppers have hatched out in the districts of Lomagundi, Darwin, Mrewa, Mtoko, Inyanga, Umtali, Melssetter, Bikita, Charter, Victoria, Ndanga, Chibi, and Belingwe.

One instance of parasitisation of adult locusts with Dipterous maggots was recorded, and in another instance *Stomatorrhina* maggots were observed attacking the eggs.

Hatchings in various localities occurred about the middle of the month, that is about ten days to a fortnight earlier than in 1938. The hatchings are fully as heavy as occurred last year but there is nothing in the nature of a general outbreak.

The hoppers are being destroyed in all accessible localities.

* Communication from the official correspondent of the Institute, Dr. I. N. SETH, B. Sc., Ph. D., D. I. C., Mycologist, Mandalay, Burma, India.

† Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of January 10, 1939, the Minister of Agriculture has granted facilities for the import and transit of horticultural products from France, Belgium, Luxemburg and Switzerland, countries considered to be contaminated by the Colorado beetle [*Leptinotarsa decemlineata*]. This Decree repeats, with some modifications, and uniting them in one text, the provisions modifying the Decree of July 29, 1937 [see this *Bulletin*, 1937, No. 10, pp. 224-225], passed with a view to preventing the introduction of the Colorado beetle.

A list is given of the ornamental plants which may be imported throughout the year, living, and with roots, with or without adhering earth.

The aerial and fresh parts of the plants given in this list may be imported during the period from April 1 to November 14.

The bulbs of ornamental plants and the tubers of *Gloxinia* and *Begonia* may be imported at any period of the year.

Nursery plants are admitted during the period from November 15 to March 31, on condition that they are free from adhering soil and that the roots have been washed.

Celery stalks may be imported during the period from September 10 to November 14, and endive during the periods from April 1 to 30, and from October 15 to November 14.

Greenhouse cucumbers and melons may be introduced throughout the year, and asparagus, from November 15 to April 30. Consignments should be accompanied by a certificate testifying that the products in question were grown under glass.

Shoots of green asparagus may be imported during the period from November 15 to March 31.

All the above-mentioned consignments should be accompanied by a certificate granted by an officer of the Plant Protection Service; a sample copy is attached to this Decree. The consignments will also be inspected on entry by an expert of the Plant Protection Service.

The plants and parts of plants mentioned above may be allowed entry at any period of the year, if they form part of the hand luggage of a traveller, and are not intended for commercial purposes; on condition, however, that the frontier inspection has proved satisfactory.

The transit of the aforesaid plants and parts of plants and of fresh vegetables is authorized under the conditions laid down by the Decree of October 20, 1937 [see this *Bulletin*, 1938, No. 2, pp. 29-30].

All relative provisions previous to this Decree [see this *Bulletin*, 1938, No. 2, pp. 29-30; No. 6, p. 125; No. 7, 149; No. 9, pp. 193-194; 1939, No. 1, p. 5] are cancelled. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1939, Bd. XI, Nr. 1, S. 2-5).

*** By Decree of February 13, 1939, the Law of March 5, 1937, relative to the protection of cultivated plants [see this *Bulletin*, 1937, No. 7, pp. 149-150] has been extended to former Austria and the Sudeten region. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1939, 19. Jahrg., Nr. 4, S. 35).

*** The new list of the communes infested by phylloxera [*Dactylosphaera vitifoliae*] and those which are suspected or in danger of being contaminated is published in No. 49 (February 27, 1939) of the Official Journal (*Deutscher Reichsanzeiger und Preussischer Staatsanzeiger*). (*Ibid.*).

*** By Ministerial Order of March 3, 1939 based on the Decrees of March 28, 1929 and September 30, 1932 [see this *Bulletin*, 1929, No. 6, p. 83 and 1932, No. 12, p. 205] with view to preventing the introduction of the carnation leaf roller [*Tortrix pronubana*], imports of carnations (cut flowers) are allowed up to April 30, 1939. (*Ibid.*).

*** Ordonnance of March 31, 1939 relative to the trade in plants between Germany and former Austria, lays down that the new customs Law of March 20, 1939, having come into force on April 1, 1939, plants and any other goods which previously were only allowed to cross the frontier under certain conditions of a phytosanitary order, may, from this date, enter into Austria from Germany without any restriction. (*Ibid.*).

Germany (Protectorate of Bohemia and Moravia). — The Decree of March 21, 1939 relative to the customs system of the Protectorate of Bohemia and Moravia lays down that the regulations in force up to the present shall remain valid until further notice. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1939, 19. Jahrg., Nr. 4, S. 35).

England and Wales. — With the object of preventing the introduction of the cherry fruit fly [*Rhagoletis cerasi*], the Importation of Raw Cherries Order of 1939, dated March 28, 1939, regulates the importation of cherries grown in Spain, France, Italy, Germany and Hungary during the 1939 season. (*Statutory Rules and Orders 1939*, No. 376, London, 1939, 5 pp.).

Belgium. — By Ministerial Decree of January 13, 1939, to prevent downy mildew (*Pseudoperonospora humuli*) hop fields are to be sprayed with preparations containing copper salts. The minimum is one treatment to be carried out during April and particularly when the spike-shaped shoots appear, a second treatment following the formation of the lateral shoots and a third during flowering.

The spike-shaped shoots are to be removed as soon as formed, and burnt. In order to prevent the development and spread of aphids, contact insecticides are to be employed in controlling these insects as soon as they appear. (*Moniteur Belge*, Bruxelles, 23-24 janvier 1939, 109^e année, nos 23-24, p. 343).

Chile. — Decree No. 90 of January 31, 1939 prohibits the use as seed of all wheats attacked by loose smut (*Ustilago tritici*). (*Diario Oficial de la República de Chile*, Santiago, 16 de febrero de 1939, año LXII, núm. 18. 294, págs. 564 y 565).

Belgian Congo. — Ordonnance No. 149-A. E. of November 28, 1938, regulating the export conditions for *Terminalia superba* unbarked timber, requires *inter alia* that the timber should be free from puncturing (holes or tunnelling caused by the larvae of different insects), rot, scald (special type of rot, less advanced stage), etc. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 10 décembre 1938, 27^{me} année, n° 23, p. [752]-754).

Egypt. — By two Orders of February 21, 1939, *Laphygma exigua* and *Agrotis ypsilon* are declared cotton pests. (*Journal Officiel du Gouvernement Egyptien*, Le Caire, 27 février 1939, 66^{me} année, n° 21, p. 2).

* * * An Order of March 22, 1939 declares *Lecanium acuminatum* a noxious pest of fruit trees.

The markaz of Zagazig is declared infested with this scale insect.

Transport, by any means, of mango trees, parts of the plant and fruits, from the infested area to any other district is prohibited. The sale or putting up for sale of plants, parts of plants and fruits attacked by the aforesaid insect is prohibited throughout the country. (*Ibid.*, 6 avril 1939, n° 35, p. 7-8).

* * * By another Order of the same date, *Aulacaspis cinnamomi* var *mangiferae* is also declared harmful to fruit trees.

The markaz of Beni Mazar, moudirieh of Minieh, is declared infested with this scale insect.

Transport, by any means, of mango plants, parts of plants and fruits, from the infested area to any other part of the country, is prohibited. The sale or putting up for sale of infested plants, parts of plants and fruits is prohibited. (*Ibid.*, p. 8).

France. — A Ministerial Decree of January 12, 1939 determines the distribution among the different agricultural areas, of the importers and exporters of agricultural products of plant origin, registered for 1939 by the Phytopathological Service. (*Bulletin de l'Office de Renseignements agricoles*, Paris, 1^{er} février 1939, année 1939, n° 3, p. 58-59).

* * * A Ministerial Decree of January 26, 1939 authorizes the sale and use of certain cyanide products (Zyklon B, Cyanogas A, Cyanogas G, granulated Cyanogas), to be utilized for fumigation in agriculture, the disinfection of living plants, soils, greenhouses and industrial premises, under the conditions established by the Ministerial Decree of July 20, 1938 [see this *Bulletin*, 1938, No. 12, p. 271-272]. (*Ibid.*, p. 60).

* * * A second Ministerial Decree of the same date authorizes the sale and use of certain preparations (the arsenical and cupric powder A. C. F. S., 'Supremacy' brand, and cuprocalsarsine) containing calcium arsenate, in the form of powder mixed with denaturants, for the treatment of potatoes under the conditions fixed by the Ministerial Decree of August 1, 1938, [see this *Bulletin*, 1938, No. 12, p. 272]. (*Ibid.*, p. 61).

* * * By Law of March 6, 1939, the Minister of Agriculture, is authorized, as an exceptional measure, to grant a lump sum for each department for the purpose of assisting the farmers of those districts where the autumn and winter forage plants, which are essential for the maintenance of live-stock, were destroyed by the frosts of December, 1938, to purchase waste wheat. (*Ibid.*, 15 mars 1939, n° 6, p. [121]-122).

* * * By another Law of the same date, the farmers who can prove that they purchased seed wheat from authorized cooperative associations or merchants, during the period from the December, 1938 frosts to April 20, 1939, for the purpose of re-sowing their fields damaged by the said frosts, will be allowed, as a special claim, an exemption of 22 fr. per quintal on the amount of the special resorption quota, according to the quantity of wheat purchased. (*Ibid.*, p. 122).

* * * A Ministerial Decree of April 15, 1939 delimits the zones contaminated by the Colorado beetle [*Leptinotarsa decemlineata*] and the protection zones. (*Journal Officiel de la République française*, Paris, 27 avril 1939, LXXI^e année, n° 100, p. 5429-5432).

Italy. — By Ministerial Decree of February 2, 1939, the export of copper sulphate is prohibited. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 8 febbraio 1939, anno 80^o, n. 32, p. 677).

* * * By Ministerial Decree of March 6, 1939 the application of the exchange duty at the reduced rate of 0.75 per cent. is extended from March 20, 1939 to the parasiticides 'Cuprital arsenicato' and 'Arsenial'. (*Ibid.*, Roma, 28 marzo 1939, n. 75, p. 1531).

* * * By Ministerial Decree of March 13, 1939, the control of the bean broomrape [*Orobanche crenata*], by collecting and destroying the parasite, has been made compulsory in the Province of Ragusa. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 21 aprile 1939, anno XI, n. 29, pp. 852-853).

* * * By Ministerial Decree of March 15, 1939, the control of the cockchafer (*Melolontha melolontha*), by collecting and destroying the adults, has been made compulsory in the province of Belluno. (*Ibid.*, pp. 853-854).

Morocco (French Zone of). — An Order of February 2, 1939 authorizes the use of mercury salts and organic mercurial compounds for soil and seed disinfection — not for any grain or seeds employed in human and animal nutrition — and specifies the precautions to be taken. (*Bulletin Officiel*, Rabat, 10 février 1939, XXVIII^e année, n° 1372, p. 176-177).

*** A second Order of the same date authorizes the establishment of a syndical association for the control of plant parasites to be known as the ' Association syndicale de lutte contre les parasites des plantes du Bas-Sebou '. (*Ibid.*, p. 177).

*** An Order of February 15, 1939 proposes an enquiry with regard to the establishment at the Petitjean civil control post of a syndical association for the control of plant pests, to be called the Petitjean Association. (*Ibid.* 3 mars 1939, n° 1375, p. 241).

*** An Order of February 17, 1939 regulates the use of hydrocyanic acid gas and cyanides for the control of plant parasites. (*Ibid.*, p. 241-242).

*** An Order of February 17, 1939 authorizes the destruction of wild boars causing heavy damage to crops in the territory of the Kelâa-des Slès civil control post, Fez region. (*Ibid.*, p. 243).

*** An Order of March 10, 1939 authorizes steps with regard to the establishment of a syndical association for the control of plant pests, to be known as the ' Association syndicale de lutte contre les parasites des plantes de la vallée de l'Ouerhra '. *Ibid.*, 24 mars 1939, n° 1378, p. 362).

*** The Vizirial Decree of March 29, 1929 (7 safar 1358) supplements the Vizirial Decree of March 17, 1936 (23 hija 1354) giving the list of pests in regard to which syndical associations for control may be set up [see this *Bulletin*, 1936, No. 8, p. 179], by adding the olive fly (*Dacus oleae*). (*Ibid.*, 28 avril 1939, n° 1383, p. 552).

*** Four Orders of April 18, 1939 relative to the inspection of artichokes, potatoes, carrots and French beans for export prescribe, *inter alia*, that these products must be free from disease or insect attack. (*Ibid.*, 5 mai 1939, n° 1384, p. 625-627).

Switzerland (Canton of Vaud). — An Order of February 1, 1938 regulates the sale of arsenical products or other poisonous substances for use exclusively in arboriculture, wine-growing, horticulture and agriculture (vegetables excepted). (*Recueil des lois, décrets, arrêtés et autres actes du Gouvernement du Canton de Vaud*, Lausanne, 1939, tome CXXXV, 1938, p. 39-41).

*** A Decree of May 17, 1938 abolishes, for 1938 and 1939, the landowners' tax for phylloxera insurance. (*Ibid.*, p. 145).

*** An Order of October 28, 1938 regulates: (a) the use of hydrocyanic acid gas and substances which evolve this gas, when employed for destroying rodents or insects, disinfecting property or any other object; (b) the utilization of rat poisons. (*Ibid.*, p. 177-179).

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III. La microflora della pasta-legno. Batteri. (La microflora de la pâte mécanique. Bactéries. — Microflora of wood pulp. Bacteria) par A. Mezzetti.
IV. Descrizione, riproduzione artificiale, classificazione delle macchie. (Description, reproduction artificielle, classification des taches. — Description, artificial reproduction and classification of spots) by G. Goidànich and W. Vivani.]

- V. Fisiologia, comportamento biologico dei funghi cromogeni. (Physiologie, biologie des champignons chromogènes. — Physiology, biological action of the blueing fungi) by G. Goidànich and W. Vivani.
- VI. Ezologia, epidemiologia delle alterazioni. (Etiologie, épidémiologie des altérations. — Etiology, epidemiology of the alterations) by G. Goidànich, A. Mezzetti and W. Vivani.
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Since the primary aim of the present book is the ready recognition of symptoms, the arrangement of the subject-matter is such as to facilitate identification of the diseases; these are therefore grouped according to the host plants, and under the various organs on which the symptoms are to be seen, beginning with the roots.

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